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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XA937

Guidelines for Assessing Marine Mammal Stocks

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of availability; response to comments.

SUMMARY: NMFS has incorporated public comments into revisions of the guidelines for preparing stock assessment reports (SARs) pursuant to section 117 of the Marine Mammal Protection Act (MMPA). The revised guidelines are now complete and available to the public.

ADDRESSES: Electronic copies of the guidelines are available on the Internet at the following address: *http://www.nmfs.noaa.gov/pr/sars/guidelines.htm.*

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SUPPLEMENTARY INFORMATION:

Background

Section 117 of the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361 *et seq*.) requires NMFS and the U.S. Fish and Wildlife Service (FWS) to prepare stock assessments for each stock of marine mammals occurring in waters under the jurisdiction of the United States. These reports must contain information regarding the distribution and abundance of the stock, population growth rates and trends, estimates of annual human-caused mortality and serious injury from all sources, descriptions of the fisheries with which the stock interacts, and the status

of the stock. Initial stock assessment reports (SARs, or Reports) were first completed in 1995.

NMFS convened a workshop in June 1994, including representatives from NMFS, FWS, and the Marine Mammal Commission (Commission), to develop draft guidelines for preparing SARs. The report of this workshop (Barlow et al., 1995) included the guidelines for preparing SARs and a summary of the discussions upon which the guidelines were based. The draft guidelines were made available, along with the initial draft SARs, for public review and comment (59 FR 40527, August 9, 1994), and were finalized August 25, 1995 (60 FR 44308).

In 1996, NMFS convened a second workshop (referred to as the Guidelines for Assessing Marine Mammal Stocks, or "GAMMS," workshop) to review the guidelines and to recommend changes to them, if appropriate. Workshop participants included representatives from NMFS, FWS, the Commission, and the three regional scientific review groups (SRGs). The report of that workshop (Wade and Angliss, 1997) summarized the discussion at the workshop and contained revised guidelines. The revised guidelines represented minor changes from the initial version. The revised guidelines were made available for public review and comment along with revised stock assessment reports on January 21, 1997 (62 FR 3005) and later finalized.

In September 2003, NMFS again convened a workshop (referred to as GAMMS II) to review the guidelines and again recommend minor changes to them. Participants at the workshop included representatives of NMFS, FWS, the Commission, and the regional SRGs. Changes to the guidelines resulting from the 2003 workshop were directed primarily toward identifying population stocks and estimating Potential Biological Removal (PBR) for declining stocks of marine mammals. The revised guidelines were made available for public review and comment on November 18, 2004 (69 FR 67541) and finalized on June 20, 2005 (70 FR 35397, NMFS 2005).

In February 2011, NMFS convened another workshop (referred to as GAMMS III) to review the guidelines and again recommend changes to them. Participants at the workshop included representatives from NMFS, FWS, the Commission, and the three regional SRGs. The objectives of the GAMMS III workshop were to (1) consider methods for assessing stock status (i.e., how to apply the PBR framework) when abundance data are outdated, nonexistent, or only partially available; (2) develop policies on stock identification and application of the PBR framework to small stocks, transboundary stocks, and situations where stocks mix; and (3) develop consistent national approaches to a variety of other issues, including reporting mortality and serious injury information in assessments. Nine specific topics were discussed at the workshop. The deliberations of these nine topics resulted in a series of recommended modifications to the current guidelines (NMFS, 2005). The main body of the GAMMS III workshop report includes summaries of the presentations and discussions for each of the nine agenda topics, as well as recommended revisions to individual sections of the guidelines (Moore and Merrick, 2011). Appendices to the workshop report provide a variety of supporting documents, including the full proposed revision of the guidelines (Appendix IV). On January 24, 2012 (77 FR 3450), NMFS made the GAMMS III workshop report available for public review, and requested comment on the proposed revisions in Appendix IV. The report is available at *http://www.nmfs.noaa.gov/pr/pdfs/sars/gamms3_nmfsopr47.pdf.*

Revisions to the Guidelines for Preparing Stock Assessment Reports

The paragraphs below describe the proposed guideline revisions that were recommended by the GAMMS III workshop participants, as well as a summary of how NMFS has or has not incorporated those proposed revisions into the final revised guidelines. They are organized by topic, as outlined in Appendix IV of the GAMMS III workshop report.

Topic 1: PBR calculations with outdated abundance estimates. For an increasing number of marine mammal stocks, the most recent abundance estimates are more than 8 years old. Under existing guidelines (NMFS, 2005), these are considered to be outdated and thus not used to calculate PBR. The current practice is to consider the PBR for a stock to be "undetermined" after supporting survey information is more than eight years old, unless there is compelling evidence that the stock has not declined during that time.

The workshop participants recommended and the proposed guidelines included the following revisions to calculate PBRs for stocks with old abundance information: (1) During years 1-8 after the most recent abundance survey, "uncertainty projections" would be used, based on uniform distribution assumptions, to serially reduce the minimum abundance estimate (N_{min}) by a small increment each year; (2) after eight years, and assuming no new abundance estimate has become available, a worst-case scenario would be assumed (i.e., a plausible 10-percent decline per year since the most recent survey), and so a retroactive 10-percent decline per year would be applied; and (3) if data to estimate a population trend model are available, such a model could have been used to influence the uncertainty projections during the first eight years.

NMFS received a number of comments expressing strenuous objection to/concern with the proposed framework for stocks with outdated abundance estimates, which has led us to reevaluate the topic. As such, NMFS is not finalizing these recommended changes related to Topic 1 at this time. Rather, we will be further analyzing this issue, and should we contemplate changes to the guidelines regarding this topic, NMFS will propose them and solicit public comment in a separate action.

Topic 2: Improving stock identification. For most marine mammal species, few stock definition changes have been made since the initial SARs were written. The proposed guidelines

directed that each Report state in the "Stock Definition and Geographic Range" section whether it is plausible the stock contains multiple demographically independent populations that should be separate stocks, along with a brief rationale. If additional structure is plausible and human-caused mortality or serious injury is concentrated within a portion of the range of the stock, the Reports should identify the portion of the range in which the mortality or serious injury occurs. These revisions to the guidelines have been made.

The GAMMS III workshop also addressed the terms "demographic isolation" and "reproductive isolation." Workshop participants agreed that the intended meaning of these terms when originally included in the guidelines was not of complete isolation, which implies that there should be no interchange between stocks. Therefore, they recommended and the proposed guidelines included clarification of terminology by replacing references to "demographic isolation" and "reproductive isolation" with "demographic independence" and "reproductive independence," respectively. These revisions to the guidelines have been made.

Related to this topic, the workshop participants also recommended that NMFS convene a national workshop to systematically review the status of stock identification efforts and to identify and prioritize the information needed to improve stock identification. NMFS convened such a workshop in August 2014 (Martien *et al.*, 2015). See response to Comment 10.

Topic 3a: Assessment of very small stocks. The PBR estimate for some stocks may be very small (just a few animals or even less than one). In such cases, low levels of observer coverage may introduce substantial small-sample bias in bycatch estimates. The proposed guideline revisions included a table in the Technical Details section that provides guidance on the amount of sampling effort (observer coverage and/or number of years of data pooling) required to limit small-sample bias, given a certain PBR level. If suggested sampling goals (per

the table) cannot be met, the proposed guidelines instructed that mortality should be estimated and reported, but the estimates should be qualified in the SARs by stating they could be biased. NMFS has incorporated this language into the revised guidelines.

The proposed guidelines suggested removing the following sentence from the Status of Stocks section: "In the complete absence of any information on sources of mortality, and without guidance from the Scientific Review Groups, the precautionary principle should be followed and the default stock status should be strategic until information is available to demonstrate otherwise." NMFS has incorporated this revision into the guidelines, as NMFS does not consider the original text to be consistent with the MMPA's definition of "strategic."

Topic 3b: Assessment of small endangered stocks. Some endangered species, like Hawaiian monk seals, are declining with little to no direct human-caused mortality, and the stock's dynamics therefore do not conform to the underlying model for calculating PBR. Thus, PBR estimates for some endangered species stocks have not been included or have been considered "undetermined" in SARs. The proposed guidelines instructed that in such cases, if feasible, PBR should still be calculated and included in the SARs to comply with the MMPA. In situations where a stock's dynamics do not conform to the underlying model for calculating PBR, a qualifying statement should accompany the PBR estimate in the SAR. NMFS has incorporated this language into the revised guidelines.

Topic 4: Apportioning PBR across feeding aggregations, allocating mortality for mixed stocks, and estimating PBR for transboundary stocks.

Feeding aggregations: Given the definition that a population stock consists of individuals in common spatial arrangements that interbreed when mature, population stocks of species that have discrete feeding and breeding grounds (e.g., humpback whales) have generally

been defined based on breeding ground stocks. However, given the strong maternal fidelity to feeding grounds, migratory species such as humpback whales can have feeding aggregations that are demographically independent with limited movement of individuals between feeding aggregations. Such feeding aggregations can consist of a portion of one breeding population, or of portions of multiple breeding populations, and can represent a single demographically-independent unit, or a mix of two or more demographically-independent units. Although this approach of identifying stocks based on feeding aggregations seemed feasible, workshop participants felt this approach added significant complexity without providing substantial management advantages. The workshop participants did not recommend any such changes to the guidelines at this point. None were included in the proposed guidelines nor have any been made in the final revisions.

Allocating mortality for mixed stocks: In some cases, mortality and serious injury occur in areas where more than one stock of marine mammals occurs. The proposed guidelines specify that when biological information is sufficient to identify the stock from which a dead or seriously injured animal came, the mortality or serious injury should be associated only with that stock. When one or more deaths or serious injuries cannot be assigned directly to a stock, then those deaths or serious injuries may be partitioned among stocks within the appropriate geographic area, provided there is sufficient information to support such partitioning. In those cases, Reports should discuss the potential for over- or under-estimating stock-specific mortality and serious injury. In cases where mortalities and serious injuries cannot be assigned directly to a stock and available information is not sufficient to support partitioning those deaths and serious injuries among stocks, the proposed guidelines instruct that the total unassigned mortality and serious injuries should be assigned to each stock within the appropriate geographic area. When deaths

and serious injuries are assigned to each overlapping stock in this manner, the Reports should discuss the potential for over-estimating stock-specific mortality and serious injury. NMFS has incorporated this language into the revised guidelines.

Transboundary stocks: The proposed guidelines strengthen the language regarding transboundary stocks, cautioning against extrapolating abundance estimates from one surveyed area to another unsurveyed area to estimate range-wide PBR. They state that informed interpolation (e.g., based on habitat associations) may be used, as appropriate and supported by existing data, to fill gaps in survey coverage and estimate abundance and PBR over broader areas. If estimates of mortality or abundance from outside the U.S. EEZ cannot be determined, PBR calculations should be based on abundance in the EEZ and compared to mortality within the EEZ. NMFS has incorporated this language into the revised guidelines and has provided a footnote defining informed interpolation.

Topic 5: Clarifying reporting of mortality and serious injury incidental to commercial fishing. Currently, SARs do not consistently summarize mortality and serious injury incidental to commercial fishing. The proposed guidelines specified that SARs should include a summary of all human-caused mortality and serious injury including information on all sources of mortality and serious injury. Additionally, a summary of mortality and serious injury incidental to U.S. commercial fisheries should be presented in a table, while mortality and serious injury from other sources (e.g., recreational fisheries, other sources of human-caused mortality and serious injury within the U.S. EEZ, foreign fisheries on the high seas) should be clearly distinguished from U.S. commercial fishery-related mortality. Finally, the proposed guidelines contained the addition of a subsection summarizing the most prevalent potential human-caused mortality and serious injury threats that are unquantified in the SARs, and the SARs should also indicate if

there are no known major sources of unquantifiable human-caused mortality and serious injury. NMFS has incorporated this language into the revised guidelines.

Topic 6: When stock declines are sufficient for a strategic designation. The proposed guidelines included the following: "Stocks that have evidence suggesting at least a 50 percent decline, either based on previous abundance estimates or historical abundance estimated by back-calculation, should be noted in the Status of Stocks section as likely to be below OSP. The choice of 50 percent does not mean that OSP is at 50 percent of historical numbers, but rather that a population below this level would be below OSP with high probability. Similarly, a stock that has increased back to levels pre-dating the known decline may be within OSP; however, additional analyses may determine a population is within OSP prior to reaching historical levels." NMFS has incorporated this language into the revised guidelines.

Additionally, the workshop participants recommended and the proposed guidelines included the following interpretation of the definition of a strategic stock: "A stock shall be designated as strategic if it is declining and has a greater than 50 percent probability of a continuing decline of at least five percent per year. Such a decline, if not stopped, would result in a 50 percent decline in 15 years and would likely lead to the stock being listed as threatened. The estimate of trend should be based on data spanning at least eight years. Alternative thresholds for decline rates and duration, as well as alternative data criteria, may also be used if sufficient rationale is provided to indicate that the decline is likely to result in the stock being listed as threatened within the foreseeable future. Stocks that have been designated as strategic due to a population decline may be designated as non-strategic if the decline is stopped and the stock is not otherwise strategic." NMFS received comments expressing concern with the proposed interpretation of "likely to be listed as a threatened species under the ESA within the foreseeable

future" (sec. 3(19)(B) of the MMPA). NMFS is not finalizing the proposed changes related to this topic at this time. Rather, we will further analyze this issue. Should we contemplate changes to the guidelines regarding this topic, NMFS will propose them and solicit public comment in a separate action.

The proposed guidelines included the following direction regarding recovery factors for declining stocks: "A stock that is strategic because, based on the best available scientific information, it is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future (sec. 3(19)(B) of the MMPA) should use a recovery factor between 0.1 and 0.5." As we are not finalizing the recommended changes regarding strategic stock designation (sec. 3(19)(B) of the MMPA), above, we have decided not to revise the guidelines regarding recovery factors under such situations at this time. Should changes to the guidelines regarding the above be contemplated, NMFS will include the recommended recovery factors when we solicit public comment on that action. Therefore, NMFS is not finalizing the recommended change related to this paragraph at this time.

Topic 7: Assessing stocks without abundance estimates or PBR. For many stocks, data are so sparse that it is not possible to produce an N_{min} and not possible to estimate PBR. When mortality and/or population abundance estimates are unavailable, the PBR approach cannot be used to assess populations, in spite of a statutory mandate to do so. The proposed guidelines included the following addition to the Status of Stocks section: "Likewise, trend monitoring can help inform the process of determining strategic status." NMFS has incorporated this language into the revised guidelines.

Topic 8: Characterizing uncertainty in key SAR elements. It is difficult to infer the overall uncertainty for key parameters as they are currently reported in the SARs. The proposed

guidelines direct that the Stock Definition and Geographic Range, Elements of the PBR Formula, Population Trend, Annual Human-Caused Mortality and Serious Injury, and Status of the Stock sections include a description of key uncertainties associated with parameters in these sections and an evaluation of the effects of these uncertainties associated with parameters in these sections. NMFS has incorporated this language into the revised guidelines with some minor revisions.

Topic 9: Including non-serious injuries and disturbance in SARs. Currently, many Reports include information on human-related mortality and serious injury from all known sources (not just from commercial fisheries) but do not include information on human-related non-serious injury or disturbance. The workshop participants concluded that the guidelines, with respect to the scope of content considered by the SARs, could be retained as they currently stand. However, they encouraged authors to routinely consider including information in the Reports about what "other factors" may cause a decline or impede recovery of a particular stock. A final recommended revision to the guidelines was the addition of the following italicized text: "The MMPA requires for strategic stocks a consideration of other factors that may be causing a decline or impeding recovery of the stock, including effects on marine mammal habitat and prey, *or other lethal or non-lethal factors*." However, this italicized text is not contained in the MMPA, and therefore, as proposed could be misconstrued as being required by the MMPA. Therefore, the revision to the guidelines has been reworded for clarity.

Comments and Responses

NMFS solicited public comments on the proposed revisions to the guidelines (January 24, 2012, 77 FR 3450), contained in Appendix IV of the GAMMS III workshop report. NMFS received comments from the Commission, the three regional SRGs, two non-governmental

environmental organizations (Humane Society of the United States and Center for Biological Diversity), representatives from the fishing industry (Western Pacific Regional Fishery Management Council, Garden State Seafood Association, Maine Lobstermen's Association, Hawaii Longline Association, Cape Cod Hook Fishermen's Association, and two individuals), the American Veterinary Medical Association, the States of Maine and Massachusetts, the Makah Indian Tribe, the Center for Regulatory Effectiveness, representatives from the oil and gas industry (American Petroleum Institute, International Association of Geophysical Contractors, and Alaska Oil and Gas Association), and one individual.

NMFS received a number of comments supporting its efforts to improve stock identification (topic 2). Many commenters urged NMFS to prioritize conducting regular surveys for those species with the greatest human-caused mortality or oldest survey data. Many commenters disagreed with NMFS' proposals to use a precautionary approach with aging abundance estimates (topic 1) and apportion PBR and serious injuries and mortalities (topic 4). Comments on actions not related to the GAMMS (e.g., convening a Take Reduction Team or listing a marine mammal species under the Endangered Species Act (ESA)), or on items not related to portions of the guidelines finalized in this action, are not included below. Comments and responses are organized below according to the relevant workshop topics outlined in Appendix IV of the report.

Comments on General Issues

Comment 1: The Commission recommended that NMFS continue to encourage more exchange between regional SRGs to ensure consistency where needed and to promote useful and informative exchange among them.

Response: NMFS acknowledges this comment and will continue to encourage exchange between SRGs and strive to ensure consistency among the groups and among the SARs. To that end, we are convening a joint meeting of the three SRGs in February 2016, in addition to individual SRG meetings.

Comment 2: The Commission recommended that NMFS consider requiring a brief summary paragraph or table on the historical trend of each stock in the SARs, where appropriate, to combat the tendency to exclude important stock dynamics or allow for the shifting baselines phenomenon.

Response: It is unclear from the comment what historical trend information, specifically, the Commission is referencing that is not already provided in the SARs. Where able, we provide historical abundance data and estimate trends in abundance (see for example, the California sea lion SAR, which provides abundance data for the prior four decades). With respect to bycatch, we do not think it is feasible or appropriate to provide trends in bycatch rates over decades, as fisheries and monitoring programs change too frequently. The status of each stock is informed by current parameters, such as ESA listing status and relationship to OSP and PBR. Additionally, the statute specifies that the SARs provide current population trend information. We will continue to endeavor to provide as much historical abundance, trend, and human-related removal information (for example, historical whaling data as it relates to stock recovery and OSP, see Eastern North Pacific blue whale report) as possible, but at this time will not require a summary table or paragraph in each SAR.

Comment 3: NMFS should secure adequate support and funding to conduct marine mammal abundance surveys in the region at least every five years. Alternative cost-effective

approaches to determining N_{min}, such as trend data from index sites, should be developed and specified as acceptable methods in the guidelines.

Response: NMFS agrees that such a schedule would be ideal, but we do not currently have the resources to accomplish this. We continue to develop and implement strategies to support more efficient use of ship time through multi-species ecosystem studies, better survey designs and sampling technologies, and leveraging inter- and intra-agency resources. NMFS is also exploring alternative approaches for assessing stock status (e.g., through use of unmanned systems and acoustic technologies) apart from reliance on abundance survey data, in regions where regular surveys are cost-prohibitive. As noted in the workshop report, such approaches could include trend monitoring at index sites. Developing guidelines for alternative assessment methods was not a focus of the GAMMS III workshop, and so this does not appear in the revisions finalized here. However, NMFS will make efforts to consider how alternative sets of information could be used to aid its marine mammal stock assessments.

Comment 4: The effective management of marine mammals requires timely and accurate stock status information that is currently lacking. The proposed assumption that the existing measures protecting marine mammal species are failing to achieve management objectives and the continued use of old data to assess the status of stocks are unacceptable and fail to acknowledge collective efforts to reconcile marine mammal protection with varied ocean uses. NMFS should more frequently assess the status of marine mammal stocks and incorporate this new information into management actions.

Response: NMFS agrees that management of marine mammal stocks depends on timely and accurate stock information, and in many cases up-to-date stock assessments are not available, nor are the resources necessary to conduct the assessment. NMFS acknowledges that

the reliability of abundance estimates for calculating PBR is reduced over time. The proposed approach to calculating PBR with outdated abundance information assumed the worst-case scenario, but we are not finalizing that approach at this time. Accordingly, NMFS is analyzing methods to calculate PBRs for stocks with outdated abundance information as well as developing methods to collect data more efficiently and cost effectively. See response to Comment 3.

Comment 5: The Alaska SRG expressed concern that very different approaches are taken for PBR and mortality components of SARs. A great deal of modeling effort and simulations has gone into making the PBR calculations conservative, but there is no similar concern for the mortality and serious injury data. In some of the Alaska SARs, 20+ year-old observer data are the only mortality data for a particular fishery. The nature of Alaska fisheries can change quite quickly, so Alaska SRG members strongly object to using such old data. The reliability of removals data is just as important as population data when assessing stock status. This issue merits serious attention, and as a first step, the quality of removals data should be thoroughly and explicitly evaluated when uncertainty in SARs is evaluated.

Response: NMFS acknowledges that many of the data related to Alaska marine mammal stocks are dated. NMFS continues to rely upon and incorporate the best available data in the SARs, but in some cases these data are many years old. The revised guidelines instruct SAR authors to describe uncertainties in key factors, including human-caused mortality and serious injury, and to evaluate the effects of those uncertainties.

Comment 6: The proposed changes do not reflect an agency commitment to generating best available science upon which to base its decisions. In fact, this rule contains no statements as to what the agency intends to do with respect to old or non-existent assessments other than to

reduce PBR. We request the agency comment for the record specifically how NOAA intends to address the GAMMS III stated need for accurate and timely census data.

Response: The MMPA requires that NMFS and FWS use the best available scientific information in its assessment and management of marine mammal stocks. NMFS strives to collect the data necessary for timely stock assessments in a cost-efficient manner, but agency resources are limited, and there are instances where data are either too old or non-existent. We are currently analyzing how to calculate PBR when data are outdated.

Comment 7: We appreciate NMFS' efforts to improve stock identification, small stock biases, non-serious injuries, and institute other SAR enhancements, and encourage NMFS to incorporate veterinary expertise relative to marine mammal population, health, and ecosystem conservation status.

Response: NMFS acknowledges this comment. NMFS continues to incorporate and rely upon veterinary expertise in activities related to stock assessment; for example, the development of the serious injury determination policy and procedures, and response to stranded animals and UMEs.

Comment 8: Several of the GAMMS III recommendations require more explanations and verbiage to be added to the SARs (e.g., Topics 2, 5, 8, and 9).

Response: NMFS recognizes that the recommendations require additional text to be added to the SARs. We strive to maintain the conciseness of the SARs while providing best available science and meeting the directive of MMPA section 117(a).

Comment 9: NMFS should produce a record showing that the guidelines and GAMMS Report comply with the Information Quality Act (IQA) Pre-dissemination review requirements as follows: (1) all models that the guidelines or GAMMS Report use should be peer reviewed in

order to determine their compliance with Council for Regulatory Environmental Modeling Guidance; (2) the method used by the guidelines and GAMMS Report to estimate population uncertainty violates the IQA accuracy and reliability requirement; and (3) the guidelines and GAMMS Report violate the IQA accuracy and reliability requirements by telling staff to make up abundance data and PBR when measured data do not exist ("informed interpolation"). In addition, NMFS should revise the guidelines and GAMMS Report to delete any suggestion that marine mammal SARs should discuss oil and gas seismic effects, as oil and gas seismic operations do not cause mortality or serious injury to marine mammals and do not cause a decline or impede recovery of any strategic stock.

Response: The GAMMS report referenced by the commenter is a summary of the proceedings of a workshop and was reviewed for accuracy prior to dissemination. We did not solicit comments nor are we responding to comments on the workshop report itself. The guidelines also underwent IQA pre-dissemination review prior to being finalized and released to the public. There is no requirement under the NOAA or OMB Information Quality Guidance to explain within the guidelines themselves how they have met IQA requirements.

The marine mammal SARs are based on the best available science. NMFS strives to use peer-reviewed data as the basis for reports. However, in some cases, the best available science may not have been published or subjected to a juried professional journal review, as this process can take months or years to complete. In other cases, data pertinent to assessments of stocks are routinely collected and analyzed but are not suitable for a stand-alone external peer-reviewed publication. Therefore, NMFS often relies on science that has been through a NMFS Science Center's internal expert review process and/or has been subjected to other internal or external expert review to ensure that information is not only high quality but is available for management

decisions in a timely fashion. In these cases, all NOAA-authored literature should meet, at the least, the standards for Fundamental Research Communications established by the NOAA Research Council and by NMFS. NMFS may rely on the SRGs to provide independent expert reviews of particular components of new science to be incorporated into the SARs to ensure that these components constitute the best available scientific information. Likewise, upon SRG review of these components and the draft SARs themselves, NMFS considers the SRG review of the draft SARs to constitute peer review and to meet the requirements of the OMB Peer Review Bulletin and the Information Quality Act.

The proposed method for projecting uncertainty in abundance estimates (topic 1) is not being finalized at this time (see below). Any models that are employed in the SARs have been peer reviewed, as is their specific application to the SARs, and therefore meet the requirements of the IQA. Regarding the use of informed interpolation to estimate abundance within a study area based on habitat modeling or similar approaches (i.e., model-based abundance estimation), this approach is commonly applied in ecology. The International Whaling Commission Scientific Committee recently acknowledged the strength and utility of model-based abundance estimation methods and is planning a workshop to formulate revisions to its guidelines for conducting surveys and analyzing data to include guidance on the use of these methods in management (IWC, 2015). Model-based estimation of density is based on survey data and habitat or other covariates, which is entirely science based. To suggest we are directing staff to "make up abundance data and PBR" is a mischaracterization of what is contained in the revised guidelines. We have added a footnote to the guidelines to clarify the definition of "informed interpolation."

Regarding oil and gas activities, nowhere in the proposed guidelines are oil and gas or seismic activities specifically discussed. The guidelines do not direct the inclusion of oil and gas

activities in the SARs; however, if oil and gas activities are found to be having a detrimental effect on a stock or its habitat, we would include it in the report, as we would with any other activity. The final revised guidelines (very slightly revised from the proposed guidelines) state: "The MMPA requires for strategic stocks a consideration of other factors that may be causing a decline or impeding recovery of the stock, including effects on marine mammal habitat and prey. In practice, interpretation of "other factors" may include lethal or non-lethal factors other than effects on habitat and prey. Therefore, such issues should be summarized in the Status of the Stock section for all strategic stocks. If substantial issues regarding the habitat of the stock are important, a separate section titled "Habitat Issues" should be used. If data exist that indicate a problem, they should be summarized and included in the Report. If there are no known habitat issues or other factors causing a decline or impeding recovery, this should be stated in the Status of the Stock section."

Comments on Topic 1: Assessing Stocks with Outdated Abundance Estimates

NMFS received a number of comments expressing strenuous objection to/concern with the proposed framework for stocks with outdated abundance estimates. As such, NMFS is not finalizing the proposed revisions related to Topic 1 at this time. Rather, we will further analyze this issue. Should we contemplate changes to the guidelines regarding this topic, NMFS will propose them and solicit public comment in a separate action.

Comments on Topic 2: Improving Stock Identification

Comment 10: The Commission recommended that NMFS convene a national workshop to systematically review the status of stock identification efforts and to identify and prioritize the information needed to improve stock identification.

Response: In August 2014, NMFS convened a workshop on the use of multiple lines of evidence to delineate demographically independent populations (Martien et al., 2015). The meeting participants agreed that the best way to provide guidance on the use of multiple lines of evidence when delineating demographically independent populations for marine mammals was to produce a Stock Delineation Handbook that can serve as a guide for future demographically-independent population delineation efforts. Development of the handbook is currently underway. Subsequent to the 2014 workshop, NMFS began developing an internal procedure for identifying and prioritizing stocks in need of examination for potential revisions that would complement and be integrated into the stock delineation workshop outputs and the existing SAR process.

Comment 11: The GAMMS III workshop report makes several very good recommendations for improving stock identification, and the Alaska SRG and the Humane Society of the United States agree with all of them.

Response: NMFS acknowledges this comment.

Comment 12: The Pacific SRG recommends that NMFS focus on the role of genetics in determining marine mammal stock structure and in defining the terms "stock" and "population."

Response: Although the guidelines are clear that genetic evidence is not the sole evidence that could be used to define stocks, changes in stock definition have relied on genetic data as the primary line of evidence, and species for which genetic evidence are not available have not had new stocks defined. The MMPA uses the term "population stock." The guidelines have a lengthy section on "Definition of stock" that has been discussed in each of the GAMMS workshops and in a special workshop devoted to stock definition (see response to Comment 10). The language that interprets "population stock" has remained largely unchanged since the first set of guidelines despite much discussion.

Comment 13: The Pacific SRG would like to have the following questions addressed: How do we integrate the MMPA's goal of maintaining a population as a functioning part of the ecosystem with the statute's definition of a stock (that emphasizes breeding interchange)? In a continuum of levels of genetic exchange, where does one draw the line between what is a stock and what is not? How will the proposed use of eco-regions be practically implemented in stock determination and how will migratory stocks that feed in one region and breed in another be treated under this proposal? How do we balance the conservation concerns resulting from stocks being defined very broadly versus the costs and management concerns resulting from stocks being defined very finely?

Response: The definition of "population stock" as "a group of marine mammals of the same species or smaller taxa in a common spatial arrangement, that interbreed when mature" is vague from a biological perspective. To some degree, all "groups" within a species interbreed when mature or else they would be considered different species according to the biological species concept. Clearly, population stock was intended to mean interbreeding at some greater level but that level is not specified. Interpretation becomes more difficult when considering known cases of migratory species with strong fidelity to both feeding and breeding grounds. Consider, for example, humpback whales that feed in Southeast Alaska and breed in Hawaii. These individuals can interbreed when mature but can (and do) interbreed with individuals that feed in other areas. If a threat occurred within Southeast Alaska that resulted in unsustainable deaths in that area, then if the "Southeast Alaska whales" were a stock, that stock's PBR could be used as an indicator that management efforts to mitigate that threat were warranted. In contrast, if "interbreed when mature" considered all the whales in Hawaii, then the human-caused mortality in Southeast Alaska may never exceed the PBR based on Hawaii, and

eventually the ecosystem in Southeast Alaska would cease to have humpback whales as a functioning part. Such cases result in an apparent conflict between the words "interbreed when mature" and the goal to maintain population stocks as functioning elements of their ecosystem.

Often, changes to stock delineations in the SARs have relied on interpretation of genetic data. The Pacific SRG asks where one draws the line on what level of genetic exchange suffices to qualify as a stock. Interpretation has been based on the guidelines:

> "Demographic independence means that the population dynamics of the affected group is more a consequence of births and deaths within the group (internal dynamics) rather than immigration or emigration (external dynamics). Thus, the exchange of individuals between population stocks is not great enough to prevent the depletion of one of the populations as a result of increased mortality or lower birth rates."

To date, accepted "new" stocks have been strongly differentiated, indicating such low levels of exchange that immigration is relatively trivial. There will be, however, borderline cases. Such is the nature of imposing discrete categories on continuous processes.

The recommendations from the GAMMS III workshop do not propose basing stocks on eco-regions. Eco-regions were discussed during the workshop in two contexts: 1) in a working paper that demonstrated that most stocks are currently defined at a very large scale often encompassing several eco-regions, and 2) that eco-regions may highlight stocks that may deserve consideration in a stock definition meeting because that stock may be at too large a scale and could encompass multiple demographically independent populations.

Comment 14: In the SARs, a concise statement concerning uncertainty in stock structure could be included in the section on uncertainty discussed under Topic 8. Details should be provided only when publications are not yet available. The Pacific SRG questions the usefulness

of repeating in nearly every SAR the sentence "It is plausible that there are multiple demographically-independent populations within this stock."

Response: The Pacific SRG requested that the reader of a SAR be able to readily assess the level of confidence that can be ascribed to the PBR calculation. A critical part of that calculation is abundance, which can be severely biased if stock definition is incorrect. We recognize that many SARs will include the same statement about the plausibility of multiple demographically independent populations within the stock, but we consider it necessary to better inform the reader's understanding of areas of uncertainty.

Comment 15: NMFS received a number of comments related to stock definition and stock delineation based on feeding aggregations. Such as: the revised guidelines should address whether, and under what circumstances, a feeding aggregation can be identified as a stock consistently with the MMPA's statutory definition of a stock. One commenter stated that it is not clear whether or how the definition of a stock in the proposed guidelines relates to the definition of a stock in the MMPA. One commenter suggested that the revised guidelines should clarify the meaning of "internal dynamics" and explain how it relates to the statutory interbreeding requirement. Another suggestion was that the revised guidelines should address the workshop participants' suggestion "that human-caused mortality on the feeding grounds be monitored and evaluated against a PBR calculation made for the feeding aggregation and that the feeding-ground PBR, mortality, and evaluation results be reported in the SARs, as is currently done for Pacific humpback stocks."

Response: The workshop participants discussed the possibility of basing stocks on feeding aggregations. Although workshop participants considered this approach to be feasible, they believed it added significant complexity without providing substantial management

advantages, and did not recommend revisions to the guidelines at this time. Therefore, this revision of the guidelines does not specifically discuss identification of stocks based on feeding aggregations. We recognize and acknowledge these comments related to feeding aggregations and stock definition, but as they do not relate to the current revisions to the guidelines, we are not addressing them in this action. If the issue is further considered by the agency in a separate action, we will address those comments in the development of that action.

Comment 16: In the proposed guidelines, NMFS suggests that it may delineate marine mammal stocks based upon human factors such as incidental take as a result of human-caused mortality. However, the MMPA does not permit the determination of stock status based on human-related factors. Accordingly, when delineating stocks, NMFS can only consider the demographic and biological characteristics of the species at issue. Carving out stocks in areas where human-caused mortality is high, as NMFS proposes, would violate the MMPA.

Response: The guidelines state: "For example, it is common to have human-caused mortality restricted to a portion of a species' range. Such concentrated mortality (if of a large magnitude) could lead to population fragmentation, a reduction in range, or even the loss of undetected populations, and would only be mitigated by high immigration rates from adjacent areas." They caution that serious consideration should be given to areas with concentrated high human-caused mortality, but that actual stock definition should be based on biological considerations. In other words, high-localized human-caused mortality should highlight the need for stock identification scrutiny but not the lines of evidence used.

Comment 17: If it cannot be demonstrated with normal genetic analysis, then it is unwarranted to establish populations or subpopulations based on behavior or distribution. To

split existing populations into smaller units only invites the development of fragmented PBRs with an aggregate value that will likely be lower than that of the whole population.

Response: Genetic data are certainly useful when attainable, but in many cases genetic samples (of sufficient quantity to draw sound inferences) cannot be obtained. There are many other lines of evidence that can be informative to determining stock structure, including behavior and distribution and also movement data from photographic identification or tagging. Genetic data are sometimes sufficient but are not exclusively needed to make sound inferences concerning stock structure. In 2014, NMFS convened a workshop to review the use of other lines of evidence, as consistency and accuracy in delineating stocks for species with limited data would be improved if guidelines were available on both the strengths of different lines of evidence and how to evaluate multiple lines together (Martien *et al*., 2015). As a result of this workshop, NMFS is developing a handbook for identification of demographically independent populations, which includes genetic information as well as other lines of evidence.

Comment 18: The revised guidelines should acknowledge that factors other than demographic independence, such as a localized disease or a localized change in prey availability, might cause different population responses between geographic regions. In light of such factors, the revised guidelines should discuss under what circumstances it is appropriate to designate stocks solely on the basis of different population responses between geographic regions.

Response: Demographic independence is defined in terms of birth and death rates within the population and immigrations from outside the population. Presumably, the response of a population to 'localized disease or localized change in prey availability' would be changes in the birth and/or death rates. Thus, it would seem that the concern above is already accounted for in the guidelines.

Comment 19: If the revised guidelines continue to define a stock as a demographically-independent biological population, they should explain more clearly the circumstances under which a group of marine mammals can be designated as a stock even in the absence of evidence that the group comprises a demographically independent biological population. Are such circumstances limited to those in which "mortality is greater than a PBR calculated from the abundance just within the oceanographic region where the human-caused mortality occurs," as suggested in the GAMMS III Report? Or can stocks be designated in other circumstances in the absence of evidence of demographic independence? If so, what other circumstances are contemplated?

Response: The section on definition of stocks in the guidelines seeks to clarify the practical process of definition given biological complexity and different types and qualities of available data. This section was contained in GAMMS II (NMFS 2005) and was not revised in this current revision of the guidelines. The guidelines note that particular attention should be given to areas where mortality is greater than PBR but do not limit stock definition to those circumstances. The stock definition workshop (see above) was suggested as a forum to improve stock definition in data-poor cases.

Comments on Topic 3: Assessment of Small and Endangered Stocks

Comment 20: The Commission recommends that NMFS adopt the workshop recommendation to include, when appropriate, a statement in each assessment explaining that bycatch data are not sufficient to estimate the bycatch rate with acceptable precision. The Commission and another commenter recommended NMFS treat each such stock as strategic unless and until the data are sufficient to demonstrate that it is not.

Response: NMFS agrees with the importance of including a statement in each stock assessment to indicate when bycatch estimates are prone to small-sample bias, though it should be noted that bias and precision are different issues. The guidelines recommend pooling years of information as necessary to achieve precision levels of CV less than 0.3.

At this point, NMFS does not make the default assumption that a stock is strategic until demonstrated otherwise. The MMPA requires a determination of a stock's status as being either strategic or non-strategic and does not include a category of unknown. The revised guidelines state, for non-ESA listed and/or non-depleted stocks, "if abundance or human-related mortality levels are truly unknown (or if the fishery-related mortality level is only available from self-reported data), some judgment will be required to make this determination. If the human-caused mortality is believed to be small relative to the stock size based on the best scientific judgment, the stock could be considered as non-strategic. If human-caused mortality is likely to be significant relative to stock size (e.g., greater than the annual production increment) the stock could be considered as strategic."

Comment 21: When calculating PBR, NMFS should err on the side of caution rather than allowing loosely defined flexibility that may be used to the detriment of the stock. With stocks such as the Cook Inlet belugas or Hawaiian monk seals, the documented decline in abundance would seem to challenge the assumption that net productivity occurs. Therefore, a PBR of zero is appropriate and would promote regional consistency.

Response: NMFS recognizes that in some cases the dynamics of a stock do not comport with the underlying assumptions of the PBR framework. Given that Section 117 directs the agency to calculate PBR, the revised guidelines direct authors to calculate PBR but in such instances to qualify the calculation in the PBR section of the Report.

Comment 22: We support the calculation of PBR even for small stocks with little human-caused mortality to comply with the MMPA. However, we do not support the exception to depart from the PBR requirement.

Response: NMFS recognizes that, pursuant to Sec. 117 of the MMPA, each stock assessment report should include an estimate of the PBR for the stock. However, PBR is not always estimable. Most obviously, we lack abundance estimates for some stocks. Less obviously, the equation for estimating PBR makes assumptions about the underlying population growth model for marine mammals, and for stocks whose population dynamics do not appear to conform to these assumptions, the calculated PBR is considered unreliable as an estimate of the true potential biological removal. The revisions to the guidelines encourage reporting PBR for all stocks possible and qualifying in the SAR when the reported value is not considered reliable. Departure from this suggestion must be discussed fully within any affected report.

Comment 23: The Commission recommends that NMFS require stock assessment authors to set PBR to zero in those cases that are not in accord with the commonly assumed PBR framework and involve stocks with no tolerance for additional human-related removals.

Response: The revisions to the guidelines encourage reporting PBR for all stocks possible and qualifying in the stock assessment report when the reported value is not considered reliable or in cases where a stock's dynamics do not conform to the underlying model for calculating PBR. At this point, the guidelines are not instructing authors to set PBR to zero.

Comment 24: The Pacific SRG continues to support a decision not to report a PBR in the monk seal SAR.

Response: By ecological theory, i.e., when the assumption of simple logistic population growth is reasonable and when a stock's status can be attributed to direct anthropogenic impacts,

a non-zero estimate of PBR is not unreasonable. In the case of Hawaiian monk seal, however, it is not apparent that these model assumptions hold. See response to Comment 22.

Comment 25: The Alaska SRG preference would be to have an undetermined PBR when assessing endangered stocks. If numerical estimates of PBR are to be given in SARs, we recommend that language be included clarifying whether negligible impact determinations have been made, what they are, and if not, stating that no human-caused takes are authorized. We do not agree that this topic is beyond the scope of SARs and rather believe that inclusion of such information would help readers understand the actual meaning of PBR in this case.

Response: NMFS disagrees with including negligible impact determinations (NIDs) under section 101(a)(5)(E) of the MMPA in the SARs. The five criteria (64 FR 28800, May 27, 1999) that NMFS may use for making a final determination and issuing 3-year incidental take authorizations to Category I and II fisheries are complex and may be difficult to relate to the data contained in the SARs, which often change on an annual basis. Furthermore, while some NIDs may use fisheries bycatch data from the past five years in making an assessment, other NID analyses may contain bycatch data from more than five years, depending on changes in fisheries, particularly regulatory changes such as time/area closures or mandatory bycatch reduction methods. In addition, NMFS may use the more recent observer data or stranding data, which may not yet be included in the most recent SARs, which may also confuse readers. Further, NMFS does not authorize (or prohibit) incidental mortalities through the SAR process.

Comments on Topic 4: Apportioning PBR, Allocating Mortality, and Estimating PBR for Transboundary Stocks

Comment 26: The Commission recommends that NMFS include in their stock assessments comparisons of PBR for feeding aggregations, and estimate or apportion mortality and serious injury levels for each aggregation.

Response: The workshop participants discussed how feeding ground PBRs should be calculated for stocks where there was a desire to monitor potential risks to feeding aggregations; however, this was not reflected in the recommended revised text for the guidelines nor were comments solicited on this issue. NMFS is not including text regarding apportioning PBR among feeding aggregations in this revision of the guidelines.

Comment 27: The Commission recommends that NMFS apply the total unassigned mortality and serious injury to each affected stock in both data-rich and data-poor cases involving taking of mixed stocks that cannot be or are not identified in the field. Doing so is the only way to be precautionary and also provides the appropriate incentive to develop better information about the affected stocks.

Response: NMFS disagrees and believes that the guidelines are sufficiently conservative at this time.

Comment 28: The Commission recommends that NMFS discourage the use of informed interpolation, require strong justification where it is used, and require that it be accompanied by reasonable measures of uncertainty associated with the interpolation.

Response: The revised guidelines allow for the use of informed interpolation (i.e., model-based abundance estimation) as appropriate and supported by existing data. NMFS has added text to the guidelines specifying that when informed interpolation is employed, the Report should provide justification for its use and associated measure of uncertainty. As a point of clarification, informed interpolation is not a person making an informed judgement; it is a model that is

informed by the covariation between habitat or other variables and density that is making the "judgement."

Comment 29: We support the recommendation of assigning the total unassigned mortalities and serious injuries to each stock within the appropriate geographic area.

Response: NMFS acknowledges this comment.

Comment 30: NMFS should not assign the "unassigned mortality and serious injury" to each stock within the affected geographic area as it would effectively double count these human interactions and affect the PBR of multiple stocks. Instead, NMFS should develop methodology based on the best available data to assign the serious injury and mortality according to the relative abundance of the stocks. When this is not possible, serious injury and mortality should remain unassigned to avoid arbitrary determinations.

Response: The revised guidelines direct that in data poor situations with mixed stocks, when relative abundances are unknown, the total unassigned mortality and serious injuries should be assigned to each stock within the appropriate geographic area. NMFS and workshop participants recognize that this approach effectively would repeatedly "count" the same deaths and serious injuries against multiple stocks. However, this approach is considered to be the most conservative in terms of ensuring that the most severe possible impacts were considered for each stock. The revised guidelines instruct that when deaths and serious injuries are assigned to each overlapping stock in this manner, the Reports will contain a discussion of the potential for over-estimating stock-specific mortality and serious injury.

Comment 31: NMFS's proposal to identify transboundary or high seas stocks with no available population data is contrary to the MMPA.

Response: NMFS did not propose to identify transboundary or high seas stocks with no available population data. Rather, the workshop discussions involved estimating range-wide abundance and PBR for transboundary stocks, and specifically, addressing the problem of managing transboundary marine mammal stocks for which PBR is estimated based on abundance from only a portion of each stock's range (for example, PBR levels for transboundary stocks being estimated based on abundance surveys that occur only within the U.S. EEZ). Although it is inappropriate to simply extrapolate abundance estimates to an unsurveyed area, the revised guidelines allow for the use of model-based density estimation to fill gaps in survey coverage and estimate abundance and PBR over broader areas as appropriate and supported by existing data. In such cases, the Report should provide justification for use of interpolation and associated measure of uncertainty.

Comment 32: NMFS must ensure that it prioritizes collection of data necessary to support interpolations when full assessments are not possible. In cases where a partial survey is conducted and methods of interpolation or modeling are not incorporated, serious injuries and mortalities should only be counted if they occur in the portion of the stock that was surveyed.

Response: NMFS agrees surveys should ideally cover the entirety of the stock range. When this is not possible, N_{min} is defined under the MMPA as an estimate of the number of animals in a stock that provides reasonable assurance that the stock size is equal to or greater than the estimate, so a partial survey can be used to calculate N_{min} and PBR. All human-caused mortality and serious injury needs to be accounted for under the MMPA, so injuries or deaths that are known to come from a stock must be apportioned to that stock even if the abundance is underestimated. The solution to this mismatch is not to ignore human-caused mortality and

serious injury (which is contrary to the MMPA), but to conduct adequate surveys or develop models to obtain complete abundance estimates.

Comment 33: The apportionment of PBR to foraging grounds between surveyed and un-surveyed areas appears to be a significant problem in the absence of data and lacks scientific justification. It appears that this will be based on untested assumptions regarding stock distributions. Assuming uniform distribution will have animals present where they may not exist or exist only seasonally.

Response: NMFS agrees that it is not appropriate to assume uniform distribution between surveyed and unsurveyed areas, and as such discourages the use of extrapolation. The workshop participants discussed this issue, and the background paper on this topic suggested that informed modeling exercises may sometimes be appropriate or necessary for management decisions and to ensure that stocks remain as functioning elements of the ecosystem. Therefore, the revised guidelines state, "abundance or density estimates from one area should not be extrapolated to unsurveyed areas to estimate range-wide abundance (and PBR). But, informed interpolation (e.g., based on habitat associations) may be used to fill gaps in survey coverage and estimate abundance and PBR over broader areas as appropriate and supported by existing data."

Comment 34: Given the known lack of general data and uncertainty of existing data, it appears that it will be difficult to accurately use separate PBRs for marine mammal populations with multiple feeding grounds. To the extent that this is understood, information pertaining to separate feeding aggregations should be noted in the stock assessment reports, but separate PBRs should not be used for stocks with multiple feeding grounds. There is a significant risk that "unassigned mortality and serious injury" could be wrongly assigned and result in erroneous

estimates to one or more populations. To avoid arbitrary assignments, when this is not possible, serious injury and mortality should remain unassigned.

Response: See response to Comment 26.

Comment 35: The section on apportioning PBR among feeding aggregations does not provide clear guidance for cases like eastern Pacific gray whales and whether the Pacific Coast Feeding Group is a stock or not, a case where there may be mitochondrial differences between feeding areas but all animals go to a common breeding area.

Response: The current Guideline revisions do not address apportioning PBR among feeding aggregations. See response to Comment 26.

Comment 36: Separate PBRs for stocks with multiple feeding grounds should not be used. Separating PBR among feeding stocks is complicated and data-intensive, and is unlikely to improve management. NMFS is rarely able to adequately determine which portion of the stock was involved in a human interaction.

Response: See response to Comment 26.

Comment 37: There is concern that failure to estimate a population-wide PBR in the assessments will lead to the reliance on the proposed default of assuming the population is in decline. The agency should develop an assessment methodology based on the best available data and devise a statistically sound interpolation algorithm to fill in gaps in survey coverage and estimate abundance over the range of the population. If this is not developed then there is a very strong possibility that assessment scientists will discount or not utilize historical estimates derived from multiple surveys spanning multiple geographic regions in one year, and/or limited surveys the following year.

Response: NMFS recognizes the need to estimate population-wide PBR for marine mammal stocks, which is why the revised guidelines allow for the use of informed interpolation (i.e., model-based abundance estimation) to fill gaps in geographical survey coverage. Where interpolation is employed, the Reports should include a statement about the level of uncertainty surrounding the estimates.

Comment 38: Priority for research should be given to stocks for which serious injury and mortality exceeds PBR and for which additional management action is required under take reduction plans. In cases where this is not possible, NMFS must consider the availability of data for interpolation or informed modeling exercises to obtain abundance estimates for the full range of the stock. This strategy requires careful coordination with Canada for transboundary stocks. If timely and robust data are not available, NMFS should not make stock assessment determinations.

Response: Staffs from NMFS Science Centers, Regional Offices, and Headquarters Offices communicate regularly to discuss science needed to support management and to help prioritize research efforts. This includes discussion of stocks for which human-caused mortality and serious injury exceed PBR and take reduction planning needs. The revised guidelines allow for the use of informed interpolation (e.g., based on habitat associations) to fill gaps in survey coverage and estimate abundance and PBR, as appropriate and when supported by existing data.

Comments on Topic 5: Reporting of Mortality and Serious Injury

Comment 39: The Commission recommends that NMFS require a summary of all human-caused mortality and serious injury in each stock assessment report. Efforts to meet that requirement will almost certainly vary, perhaps markedly. With that in mind, the Commission encourages NMFS to re-examine those report sections after one to two years to identify the most

effective reporting strategies that could then be used to develop a consistent and informative reporting approach.

Response: Section 117 of the MMPA requires that all sources of human-caused mortality and serious injury be included in stock assessments. NMFS makes every effort to include these sources of anthropogenic mortality and serious injury in each stock assessment, whether the mortality or serious injury is systematically recorded by fishery observer programs or through opportunistic records, such as strandings, where the cause of death or serious injury can be linked to human-related causes. NMFS understands that clearly presenting these mortality and serious injury data in the SARs is an important part of allowing the public to interpret the status of marine mammal stocks. Every effort will be made to continue to improve the way in which mortality and serious injury are reported in the SARs.

Comment 40: The Alaska SRG believes that extensive tabling of interactions between marine mammals and commercial fisheries should be confined to an Appendix, with only a summary table that includes mortality in the various Federal groundfish fisheries, state water fisheries, and international transboundary fisheries included in the body of the assessment. The strategy of summarizing fishery interactions should lead to a single clearly-documented estimate of mortality and associated variance for all fisheries combined with easy access to details available preferably in an online appendix.

Response: NMFS makes every effort to present fishery interaction data simply in the body of each SAR, whether in the text, tabular form, or both. The agency feels that it is valuable to have all interaction data appear within the SAR itself (although some regions also currently include a separate Appendix describing those fisheries that interact with marine mammals). NMFS also produces stand-alone injury determination and bycatch papers by region, which has

reduced the amount of information that needs to go into the SARs, as they are incorporated by reference. The agency will continue to improve the clarity of how interaction data are presented within the SARs.

Comment 41: The SARs tend to lag approximately two years behind in incorporating available observer bycatch data. For some fisheries that have 100-percent observer coverage such as the Hawaii-based swordfish fishery, such bycatch data are available in near real-time. Review of new data should be conducted promptly given that PBR, the zero mortality rate goal, and strategic status for stocks are all based on the most recent SAR.

Response: Bycatch data for most fisheries are not available in real-time and every effort is made to produce and incorporate new bycatch estimates from observer data in a timely manner into the draft SARs. SARs are typically drafted in the autumn of each year, with previous calendar year observer data representing the most up-to-date full-year information. For example, draft 2016 SARs will be prepared in the autumn of 2015 for review by regional Scientific Review Groups in early 2016. These draft 2016 reports will utilize bycatch data from calendar year 2014 if available, thus the 2-year time lag between the year the reports are published and the year of the most recent bycatch data.

Comments on Topic 6: Determining when Stock Declines Warrant a Strategic Designation

Comment 42: In an apparent attempt to interpret the MMPA definition of strategic stock, the proposed guidelines suggest that a "strategic stock" is a stock that "is declining and has a greater than 50 percent probability of a continuing decline of at least five percent per year." However, in reality, a stock that "has a greater than 50 percent probability of a continuing decline of at least five percent per year" would not necessarily qualify as "threatened" in all cases. Rather, the determination of "threatened" status under the ESA requires a species-specific

analysis of specific factors that are expressly set forth in the ESA. While NMFS may have the discretion to develop a general guideline for determining "strategic" status, NMFS may not mechanically apply the "strategic stock" definition set forth in the proposed guidelines.

Response: NMFS acknowledges this comment and has not made this revision to the guidelines. See Response to Comment 43.

Comment 43: The Commission recommends that NMFS consider any marine mammal stock that has declined by 40 percent or more to be strategic. Additionally, the Commission and the Humane Society of the United States recommend that stocks declining with more than 50 percent probability of continuing decline (by at least five percent/year) should be treated as strategic with the aim of reducing and reversing the stock's decline before a depleted designation is required.

Response: Section 3(19) of the MMPA defines a "strategic stock," as one:

"(A) for which the level of direct human-caused mortality exceeds the potential biological removal level; (B) which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the Endangered Species Act of 1973 within the foreseeable future; or (C) which is listed as a threatened species or endangered species under the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq*.), or is designated as depleted under this Act." NMFS has not adopted the workshop-recommended revisions regarding a quantitative interpretation of strategic status per section 3(19)(B) but will continue to analyze how to interpret "likely to be listed as a threatened species under the (ESA) within the foreseeable future." However, NMFS has finalized the revision regarding declines in abundance: "Stocks that have evidence suggesting at least a 50 percent decline, either based on previous abundance estimates or historical abundance estimated by back-calculation, should be noted in the Status of Stocks

section as likely to be below OSP. The choice of 50 percent does not mean that OSP is at 50 percent of historical numbers, but rather that a population below this level would be below OSP with high probability."

Comment 44: The Alaska SRG supports the quantitative recommendations for determining when non-ESA listed stocks should be considered as "strategic." We also find the rationale for using 15 years as "the foreseeable future" a reasonable default because it is based on a five percent decrease over a 15-year period resulting in a 50 percent decline.

Response: At this time, NMFS is not adopting the recommended changes related to strategic status of stocks that are declining and likely to be listed as a threatened species under the ESA within the foreseeable future.

Comment 45: The Alaska SRG agrees with the working group's recommendation that a Recovery Factor scaled from 0.1 to 0.5 be associated with stocks that are declining and likely to be listed as a threatened species under the ESA within the foreseeable future. In some cases where a decline is steep and ongoing or where the uncertainty about the population or causes of the decline are high a lower recovery factor could be warranted. We also recommend that there be a more formal process for NMFS to regularly review non-ESA listed stocks of concern to determine their status.

Response: As we are not finalizing the recommended changes regarding strategic stock designation (sec. 3(19)(B) of the MMPA), above, we have decided not to revise the guidelines regarding recovery factors under such situations at this time. Each time a SAR is reviewed, the status of the stock is evaluated.

Comment 46: While the revisions in the guidelines are a step toward developing criteria for a strategic designation, and using the threatened species recovery factors seems prudent, this revision falls short of setting timeframes to evaluate whether a stock should be reclassified.

Response: It is unclear whether the commenter is referencing evaluation timeframes under the MMPA (sec. 117(c)(1)) or the ESA (relative to the interpretation of sec. 3(19)(B) of the MMPA). Stock assessments are reviewed by NMFS every three years for non-strategic stocks or every year for strategic stocks. This sets the timeframe for evaluating whether a stock's status should be revised. See response to Comment 45 regarding MMPA sec. 3(19)(B).

Comment 47: The Pacific SRG supports the revision of when stock declines merit a strategic designation but suggests wording changes that give NMFS more flexibility surrounding the obligation to determine when a stock is depleted prior to classifying it as strategic. The SRG recommends that the NMFS regularly review whether a "depleted" status is warranted for (1) unlisted stocks of marine mammals that are declining and (2) stocks listed as depleted that are recovering.

Response: NMFS acknowledges this comment, and agrees that the depleted status of marine mammal stocks should be reviewed periodically to ensure that designations are appropriate. We are currently evaluating information contained within a review of the SARs conducted by the Commission and will, as a part of this evaluation, consider whether there is more that NMFS should to do enhance consistency and accuracy with regard to depleted status of marine mammal stocks on a more regular basis.

Comment 48: Given the challenges facing NMFS to collect timely data covering the full range of stocks already designated as strategic, NMFS should not adopt new guidelines to take

on the responsibility of delineating strategic stocks that are not designated under the ESA. There is already an acceptable federal process under the ESA to designate strategic stocks.

Response: The ESA does not designate stocks as strategic or non-strategic. Rather, the MMPA directs stocks be considered strategic if ESA-listed (i.e., threatened or endangered), depleted, or human-caused mortality exceeds PBR. Additionally section 3(19)(B) allows for strategic designations of a stock that is declining and is likely to be listed as a threatened species under the Endangered Species Act of 1973 within the foreseeable future. At this time, we are not finalizing the recommended changes regarding strategic stock designation (sec. 3(19)(B) of the MMPA).

Comments on Topic 7: Assessing Stocks without Abundance Estimates or PBR

Comment 49: The Alaska SRG supports the suggested guideline modifications relating to the use of trend monitoring. However, small changes to the guidelines will do very little to improve the situation. More substantive changes and new approaches are needed and have been described.

Response: NMFS agrees that it would be valuable to identify alternative approaches for assessing stock status, apart from reliance on abundance survey data, in regions where regular surveys are cost-prohibitive. As noted in the guidelines, such approaches could include trend monitoring at index sites. However, developing guidelines for alternative assessment methods was not a focus of the GAMMS III workshop. NMFS will make efforts to consider how alternative sets of information could be used to aid its marine mammal stock assessments. See responses to Comment 3 and Comment 4.

Comment 50: Based on the statutory mandate to use the PBR formula, NMFS should prioritize gathering data for any stocks with insufficient information to calculate levels of

abundance, trends, or mortality. NMFS should not consider approaches other than those that are mandated and should provide admonition that stocks should not automatically be determined to be non-strategic in the absence of information. Absence of data on the degree of impact to stocks is not the same as data on the absence of impacts to stocks.

Response: NMFS does prioritize its data collection based upon what it perceives to be the most critical information gaps. NMFS does not make the default assumption that a stock is strategic or non-strategic until demonstrated otherwise. See response to Comment 20.

Comment 51: If a significant data shortage makes it difficult to identify unit stocks, then NMFS should make it a high priority to remedy this uncertainty that seems crucial to determine "population status." What has NMFS done to improve "best available science" on marine mammal abundance and stock structure?

Response: NMFS agrees that it is a high priority to improve the identification of unit stocks. Consistent with this, the GAMMS III workshop participants recommended a national workshop be held to review and summarize information that is relevant to population structure. NMFS convened such a workshop and has begun developing an internal procedure for identifying and prioritizing stocks in need of examination for potential revisions that would complement and be integrated into the stock delineation workshop outputs and the existing SAR process.

Comment 52: Given that the MMPA provides significant latitude in data sources for affected species and to the extent that "anecdotal information" and "unpublished information" are used, "trend monitoring" information from the fishermen who are out there every day should be used in stock assessments.

Response: Various sources of information could be used to estimate trends as long as the information is credible and compatible with existing statistical or modeling frameworks.

Comments on Topic 8: Characterizing Uncertainty

Comment 53: The Commission recommends that NMFS include all relevant sources or measures of uncertainty in stock assessment documents. Such indicators of uncertainty are essential for readers to form reliable conclusions regarding the status of the affected stocks and the factors affecting them.

Response: NMFS agrees that information on key sources of uncertainty should be made explicit in the Reports, and this has been added to the revised guidelines.

Comment 54: The Pacific SRG has strived over the years to make the SARs models of conciseness, and the proposed guidelines could reverse these efforts. SARs should be summaries of significant results and conclusions and not lengthy discussions including detailed descriptions of methods and repetitive caveats. The recommendation to include statements regarding uncertainty about parameters affecting PBR has been made by the Pacific SRG previously, which envisioned a brief separate "Uncertainties" section summarizing significant sources of uncertainty in the stock assessment. Lengthy discussions of uncertainty embedded in each SAR section reduce clarity and readability. Additions such as points of contact could be placed in an appendix to each set of SARs, but not be placed in each individual SAR.

Response: NMFS agrees that discussions of uncertainty should be added in a way that will not detract from the clarity and readability of the stock assessment reports and will not add appreciably to the length of those reports. The workshop participants' recommended addition of providing a point of contact has not been incorporated.

Comment 55: The Alaska SRG supports changes to guidelines that would help ensure that SARs provide adequate evaluations of uncertainty. We recommend a 'report card' format as suggested by workshop attendees that will likely be more user-friendly and promote consistency between regional SARs. Additionally, this format would be more concise than the text additions recommended in the GAMMS III proposed guidelines. This report card could include the proportion of fisheries monitored within the last five years that might be interacting with strategic stocks.

Response: NMFS agrees that quantitative criteria should be used to evaluate the uncertainty in marine mammal stock assessment reports and that a "report card" may be a good format for presenting this information. The quantitative criteria and format for this has not yet been finalized and is not specified in the revised guidelines. The workshop participants also saw merit to the report card, but there was general agreement that such information would be better conveyed as a periodic publication, such as in a NOAA Technical Memorandum, which could be considered by the SRGs.

Comment 56: The Alaska SRG supports including a characterization of uncertainty in the Status of Stocks section, and recommends that it be described as "reliable," "moderately reliable," or "unreliable" as a clear way to characterize the overall utility of the status determination. We also support the suggestion that an overall assessment of the quality of SARs be conducted periodically and reported as Tech Memos, but not as a substitute for the "report cards" in the individual SARs.

Response: Uncertainty comes in many gradations, and the method of determining PBR for human-caused mortality and serious injury was specifically designed to be effective at achieving management objectives in the face of many sources and levels of uncertainty.

Furthermore, the revised guidelines recommend that the most prevalent sources of uncertainty in determining stock status and PBR levels be identified so that future research can be better directed at reducing these sources of uncertainty.

Comments on Topic 9: Expanding SARs to Include Non-Serious Injury and Disturbance

Comment 57: The Commission recommends that NMFS require sections in stock assessment reports that identify and characterize non-lethal factors that may affect population status.

Response: Section 117(a)(3) requires NMFS, in consultation with the appropriate regional scientific review group, to include other factors that might be causing a decline or impeding recovery of a strategic stock, including effects on marine mammal habitat and prey. While inclusion of non-lethal factors may be a useful qualitative approach, such factors cannot be compared to PBR to assess population status. Furthermore, other environmental documents such as environmental assessments or impact statements required under the National Environmental Policy Act would contain that information, where known. Consistent with SRG recommendations, NMFS is trying to keep the SARs concise.

Comment 58: NMFS should revise the guidelines to delete any suggestion that a mere "disturbance" or "non-serious injury" is sufficient to be included in SARs. SARs should only include events--in particular commercial fishing events--which cause mortality or serious injury, or which can be shown to cause the decline or impede the recovery of a strategic stock. This has been NMFS' position in the past, it is correct, and it should not be changed.

Response: The MMPA requires SARs to include an estimate of all sources of human-caused mortality and serious injury, not just an estimate of commercial fisheries mortality. See response to Comment 57.

Comment 59: The Alaska SRG agrees that SARs should include the annual levels of mortality and serious injury reported through take authorizations and research permits in the "Other Mortality" section.

Response: NMFS acknowledges this and is finalizing this text within the revised guidelines under the Annual Human-caused Mortality and Serious Injury section.

Comment 60: The MMPA allows for SAR comments on non-lethal factors affecting recovery for strategic stocks, and it seems reasonable that SARs for non-strategic stocks should also evaluate such factors. However, because there is a high degree of uncertainty regarding population-level effects of non-lethal injury and disturbance, it is inappropriate to include estimates of those takes in the SARs unless there is evidence they are affecting stock recovery. Disturbance and non-serious injury do not constitute "Potential Biological Removal." While it may be useful for NMFS permit users or others to compare their potential for disturbance/injury to a stock's PBR, this falls outside the intent of the MMPA-mandated PBR process for managing interactions with commercial fisheries.

Response: The revised GAMMS specify that SARs contain information on other factors that may be causing a decline or impeding recovery strategic stocks, which we have interpreted as including non-lethal effects. As discussed in response to Comment 9, we would report on all activities found to be having a detrimental effect on a stock or its habitat. Within the SARs, PBR is only compared to takes that are determined to be serious injuries or mortalities.

Comment 61: The guidelines should require a "Habitat Concerns" section in all new stock assessments. If there are no known habitat issues, this should be stated.

Response: The previous (2005) guidelines direct that if substantial issues regarding the habitat of the stock are important, a separate section titled "Habitat Issues" should be used.

Specifically, “If data exist that indicate a problem, they should be summarized and included in the Report. If there are no known habitat issues or other factors causing a decline or impeding recovery, this should be stated in the Status of the Stock section.” This section of the guidelines was not changed in this revision.

Dated: February 26, 2016.

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